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Airborne noise prediction of a ro/ro pax ferry in the port of Naples

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The noise emissions from various transportation modes including seaports have become a major concern to environmental and governmental agencies in recent years due to the impact they have on the community. As a result, campaigns and studies have been directed towards the analysis and control of main noise sources. However, few research activities have been carried out on environmental noise exposure due to port activities. In this paper, for a ship ferry, first the main onboard noise sources in terms of their nature and location have been examined; contemporarily the main characteristics of the ship's outer geometry: side layout, upper deck arrangement and funnel geometry, have been defined. Second, all noise sources data have been derived basing on board measurements of the ship ferry berthed at quay in port of Naples. Then a geometry 3D model has been created including all bodies that lie in the acoustic field in the surrounding area. Finally, each noise source of ship has been characterized by a sound power level and by the directivity and the emission angle and more points have been considered as calibration points of the numerical model.

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